

IOWA STATE UNIVERSITY

Digital Repository

CARD Working Papers

CARD Reports and Working Papers

12-2006

Nontariff Barriers

John C. Beghin

Iowa State University, beghin@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/card_workingpapers



Part of the [Economic Policy Commons](#), and the [International Economics Commons](#)

Recommended Citation

Beghin, John C., "Nontariff Barriers" (2006). *CARD Working Papers*. 442.

http://lib.dr.iastate.edu/card_workingpapers/442

This Article is brought to you for free and open access by the CARD Reports and Working Papers at Iowa State University Digital Repository. It has been accepted for inclusion in CARD Working Papers by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Nontariff Barriers

Abstract

Nontariff barriers (NTBs) refer to the wide range of policy interventions other than border tariffs that affect trade of goods, services, and factors of production. Most taxonomies of NTBs include market-specific trade and domestic policies affecting trade in that market. Extended taxonomies include macro-economic policies affecting trade. NTBs have gained importance as tariff levels have been reduced worldwide. Common measures of NTBs include tariff-equivalents of the NTB policy or policies and count and frequency measures of NTBs. These NTB measures are subsequently used in various trade models, including gravity equations, to assess trade and/or welfare effects of the measured NTBs.

Keywords

externality and trade, nontariff barrier, NTB, protectionism, sanitary and phytosanitary, SPS, standards, TBT, technical barrier to trade

Disciplines

Economic Policy | International Economics

Nontariff Barriers

John C. Beghin

Working Paper 06-WP 438

December 2006

Center for Agricultural and Rural Development

**Iowa State University
Ames, Iowa 50011-1070
www.card.iastate.edu**

John C. Beghin is a professor of economics and holds the Marlin Cole Chair in International Agricultural Economics, Iowa State University.

This paper is the basis for a forthcoming entry in *The New Palgrave Dictionary of Economics*, 2nd edition, S. Darlauf and L. Blume, eds., Palgrave Macmillan, Ltd. The author thanks Eckhard Janeba and Stephan Marette for comments on an earlier draft, and Jean-Christophe Bureau and Anne-Célia Disdier for discussions.

This paper is available online on the CARD Web site: www.card.iastate.edu. Permission is granted to excerpt or quote this information with appropriate attribution to the authors.

Questions or comments about the contents of this paper should be directed to John Beghin, 578 Heady Hall, Iowa State University, Ames, Iowa 50011-1070; Ph: (515) 294-5811; Fax: (515) 294-6336; E-mail: beghin@iastate.edu.

Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3680 Beardshear Hall, (515) 294-7612.

Abstract

Nontariff barriers (NTBs) refer to the wide range of policy interventions other than border tariffs that affect trade of goods, services, and factors of production. Most taxonomies of NTBs include market-specific trade and domestic policies affecting trade in that market. Extended taxonomies include macro-economic policies affecting trade. NTBs have gained importance as tariff levels have been reduced worldwide. Common measures of NTBs include tariff-equivalents of the NTB policy or policies and count and frequency measures of NTBs. These NTB measures are subsequently used in various trade models, including gravity equations, to assess trade and/or welfare effects of the measured NTBs.

Keywords: externality and trade, nontariff barrier, NTB, protectionism, sanitary and phytosanitary, SPS, standards, TBT, technical barrier to trade.

Nontariff Barriers

This short paper provides a definition of nontariff barriers (NTBs) and a general NTB taxonomy. It reviews recent trends in the structure of trade barriers and then describes common approaches used to measure NTBs and their effects. NTBs refer to the wide and heterogeneous range of policy interventions other than border tariffs that affect and distort trade of goods, services, and factors of production. Common taxonomies of NTBs include market-specific trade and domestic policies such as import quotas, voluntary export restraints, restrictive state-trading interventions, export subsidies, countervailing duties, technical barriers to trade, sanitary and phytosanitary (SPS) policies, rules of origin, and domestic content requirement schemes. Extended taxonomies also include macro-policies affecting trade. No taxonomy can be complete, as NTBs are defined as what they are not (Deardorff and Stern, 1998). This *Palgrave* entry on NTBs is complemented by related entries on anti-dumping, border effects, countertrade, gravity equation, quotas and tariffs, and trade costs.

A taxonomy of NTBs

Deardorff and Stern (1998) suggest the following taxonomy with five categories. A first broad category covers quantitative NTBs and similar restrictions. It includes import quotas and their administration methods (licensing, auctions, and other); export limitations and bans; voluntary export restraints, a limit on imports but managed by exporters; foreign exchange controls often based on licensing; prohibitions such as embargos; domestic content and mixing requirements forcing the use of local components in a final product; discriminatory preferential trading agreements and rules of origin; and countertrade, such as barter and payments in kind.

A second category covers fees other than tariffs and associated policies affecting imports. This category includes variable levies triggered once prices reach a threshold or target level; advanced deposit requirements on imports, anti-dumping and countervailing duties imposed on landing goods allegedly exported “below cost” or with the help of export subsidies provided by foreign governments; and border tax adjustment such as value-added taxes potentially imposed asymmetrically on imported and domestic competing goods.

A third category is extensive. It collects various forms of government policies, including a wide set of macro-economic policies. This category covers direct governmental participation and restrictive practices in trade, such as state-trading and state-sponsored monopoly and monopsony; government procurement policies with domestic preferences; and industrial policy favoring domestic firms with associated subsidies and aids. In addition, the category extends to macro-economic and foreign exchange policies; competition policies; foreign direct investment policies; national taxation and social security policies; and immigration policies. Where to draw on the NTB definition is context-dependent.

Two better-targeted categories deal with customs procedure and administrative practices, and technical barriers to trade, which are central to NTBs. The former covers custom valuation methods that may depart from the actual import valuation; customs classification procedures other than the international harmonized system of classification to levy further fees; and customs clearance procedures, such as inspections and documentation creating trading cost. Technical barriers to trade (TBT) relate to health, sanitary, animal welfare, and environmental regulations; quality standards; safety and

industrial standards; packaging and labeling regulations and other media/advertising regulations.

Recent trend in trade barriers

Except export subsidies and quotas, NTBs have become more prominent relative to tariffs. Tariffs on manufacturing goods have been reduced to low levels through eight successive rounds of the World Trade Organisation (WTO) and its predecessor, the General Agreement on Tariffs and Trade (GATT). As of 2005, the unweighted average tariff is roughly 3% in high-income countries, and 11% in developing countries according to the World Bank, from respective levels at least three times as high in 1980. Export subsidies have almost disappeared except in a few agri-food markets. Quotas have become less important, as they have been converted into two-tier tariff schemes, the so-called tariff-rate quotas. As tariffs have been lowered, demands for protectionism have induced new NTBs, such as TBT interventions. The United Nations Conference on Trade and Development (UNCTAD, 2005) estimates that the use of NTBs based on quantity and price controls and finance measures has decreased dramatically, from a little less than 45% of tariff lines faced by NTBs in 1994 to 15% in 2004, reflecting commitments made during the Uruguay Round. However, the use of NTBs other than quantity and price controls and finance measures increased from 55% of all NTB measures in 1994 to 85% in 2004. The use of TBT almost doubled, from 32% to 59% of affected tariff lines during the same period. The use of quantity control measures associated with TBT showed a small increase, from 21% to 24% of affected tariff lines, suggesting that trade impediments within TBT are rising. Kee, Nicita, and Olarreaga (2006) compute a 9% tariff equivalent of NTBs, including price and quantity controls, finance measures, and

TBT on average for all goods. The average tariff equivalent is about 40% for the goods affected by these NTBs.

Increased consumer demand for safety and environment-friendly attributes have also translated into an increase in the number of TBT. Many NTBs are regulated by the WTO agreements that came out of the Uruguay Round (the TBT Agreement, SPS Measures Agreement, the Agreement on Textiles and Clothing) and articles of the original GATT, among others. NTBs in service industries have recently become more important as trade in services has been expanding. (Dee and Ferrantino, 2005)

Most NTBs are intrinsically protectionist whenever they do not address market failures such as externalities and information asymmetries between consumers and producers of goods being traded. Safety standards and labeling requirements are examples of the latter case (Henson and Wilson, 2005). Some NTBs may restrict trade but improve welfare in the presence of negative externalities or informational asymmetries. Other NTBs can expand trade as they enhance demand and trade of a good through better information about the good or by enhancing the good's characteristics. Whether an NTB is protectionist is sometimes difficult to identify in the presence of market failure. If an NTB is equal to the measure that a social planner would implement for domestic purposes (i.e., all firms are domestic firms or all agents belong to a single economy), the NTB is presumably nonprotectionist (Fisher and Serra, 2000).

Common measurement approaches

Measuring NTBs and their effects is a challenge, because of the heterogeneity of policy instruments and lack of systematic data. A unified approach to measuring NTBs does not exist. Most measurement methods start from a simple partial equilibrium approach

looking at a single commodity and attempt to develop a producer, consumer, or trade tax equivalent to the NTBs that explains by how much supply and/or demand or trade are affected by the policy intervention. Most NTB analyses implicitly rely on a framework that accounts for three economic effects: the regulatory protection effect providing rents to the domestic sector; the “supply shift” effect, which reflects the increased costs of enforcing compliance of the NTBs on foreign and sometime domestic suppliers; and the “demand-shift” effect, which takes into account the fact that a regulation may enhance demand with new information or by reducing an externality.

The measurement of an NTB is hard to disentangle from the measurements of its effects on market equilibrium and trade. Most NTB measures and analyses focus on the increase in the price of imports resulting from the NTB, the resulting import reduction, the change in the price responsiveness of the demand for imports, the variability of the effects of the NTB, and the welfare cost of the NTB (Deardorff and Stern, 1998; and Dee and Ferrantino, 2005).

Several NTBs based on a price intervention (e.g., export subsidies, countervailing duties) are a tax instrument. More complex NTBs can sometimes be represented by a set of taxes, such as in the case of a domestic content requirement (Vousden, 1990). These NTBs can be analyzed as these types of taxes. To develop a tax equivalent, a basis of equivalence has to be chosen (Vousden, 1990). The tax equivalent has to lead to an equivalent protection level (same profit under the tax equivalent or the NTB); a price increase equivalence (a price wedge); or a consumption, production, or trade equivalent. This choice of basis depends on the intended policy analysis.

However, many NTBs do not easily translate into a tax-equivalent instrument. They require more sophisticated and indirect approaches to be measured and to quantify their effects on import volume, price, and welfare. Round-about approaches are also used because of lack of data on the direct implications of an NTB on the cost of production and consumer decisions (Beghin and Bureau, 2001).

The price-wedge method

The price-wedge method measures the impact of an NTB on the domestic price of a good in comparison to a reference price, often the border price of a comparable good. The aim of this method is to derive a tariff/tax equivalent to the NTB as previously discussed, and use the tariff/tax equivalent in further analysis that measures implications of the NTB on resource allocation in the given markets affected by the NTB. Deardorff and Stern (1998) provide price-wedge equivalent formulas for an extended coverage of NTBs.

Conceptually, the measure compares the domestic price that would prevail without the NTB to the domestic price prevailing in the presence of the NTB assuming the price paid to suppliers remains unchanged. However, these prices are practically unobservable. Implementations of the price-wedge measure of an NTB compare the domestic and foreign prices of comparable goods in the presence of the NTB accounting for tariffs, transportation costs, and other known and observed trading costs. Adjustments can be made to recover a price estimate that would prevail in the absence of the NTB, using observed levels of quantities and prices, and own-price elasticities of demand, supply, and imported goods.

The price-wedge method has several drawbacks. First, if several NTBs are jointly in place, the price-wedge measures the price effect of these policies without being

informative about their respective contributions or even their nature. Second, quality differences are hard to account for precisely, although they are a pivotal element of the price-wedge computation. The price-wedge estimate of an NTB is usually sensitive to the assumptions made on the substitution between the imported and domestic goods. This method also has some limitations in large empirical studies for which data are aggregated, resulting in loss of information on quality differences between import and domestic comparable goods. Finally, trading costs may be present but not accounted for, and the price-wedge method may falsely attribute these trading costs to an NTB.

Inventory-based frequency measures

These measures count the number or frequency of regulations and barriers present in a given market. They are used in both quantitative and qualitative assessments of the incidence of NTBs. Common measures include the number of regulations and policies, which can be further elaborated to indicators such as the number of pages of national regulations. Frequency of trade detentions at borders is also used, and so are survey-based frequency and number of complaints reported by exporters for perceived discriminatory regulatory practices.

When implemented, quantitative estimates often rely on catalogues of technical barriers (identification and description) using datasets such as UNCTAD's TRAINS dataset. Measures include simple frequency of occurrence of NTBs, frequency ratios for product categories subject to an NTB; and a coverage ratio based on the value of imports of products within a category subject to an NTB, expressed as a share of import value of the corresponding category. Relative measures can also be developed comparing the latter frequency measures in a given country with respect to accepted international norms

or best practices, for example, for SPS or food safety regulations. Alternatively, frequency measures can be compared across commodities or across countries to identify large deviations from average frequencies, flagging potential protectionist issues.

NTBs vary in importance across sectors and products. Even for a given NTB type, its effects may vary across products. A major drawback of the frequency measures is that a correlation between the number of NTBs and their effect on trade and welfare may be low in absolute value. International datasets on NTB inventories may also suffer from uneven reporting by countries and heterogeneous coverage of measures across countries and commodities. Survey-based measures focus on effective barriers rather than on just an NTB count. However, they may suffer from various reporting biases, as surveys and respondents are often motivated by mercantilism to facilitate exports by the responding exporters.

Frequency measures do not identify the trade restrictiveness of NTBs but can be used in gravity equations to identify the effects of NTBs on trade flows. When trying to quantify NTBs, an obvious technique is to consider the foregone trade that cannot be explained by tariffs and known trading costs. NTB frequency measures, or in certain cases the level of standards themselves, can help identify the trade effects of these NTBS. Provided there is enough variability across countries or over time in the measure (e.g., the level of toxic residues), they can explain the variation in trade flow not explained by other explanatory variables included in the gravity equation (e.g., respective incomes of trading countries, distance, tariff, and other variables measuring border effects).

Gravity-equation techniques attempt to measure the trade impact of NTBs, not their welfare impact, and may therefore ignore some of the beneficial effect of the

regulations that correct negative externalities but restrict trade. NTBs are appropriate if trade is the vector of negative externalities such as unsafe food imports or pest-infested imports. In addition, the direction of the effect of the “NTB” variable on trade flows in the regression is not constrained. It is possible to capture a trade or demand-enhancing effect of regulations and standards. This enhancement occurs when the NTB facilitates trade and induces consumers to consume more of a product, though the product’s price is higher because of the NTB. Such expansion through standards has been observed in OECD (Organisation for Economic Co-operation and Development) food trade (Disdier, Fontagné, and Minouni, 2006).

Risk assessment approaches

Risk assessment approaches combined with scientific knowledge can contribute to gauging a subset of NTBs, especially safety and SPS standards and regulations. These approaches can contribute to assessing the welfare effects and the potential protectionism of these types of NTBs. Scientific knowledge can determine if a regulation is science based or not, or if a risk simply does not exist or is negligible. This criterion is used by the WTO in its assessment of TBT and SPS regulations. Cost-benefit calculations combined with risk assessment provide expected cost and benefits of such types of NTBs. Risk-assessment measures provide an economic criterion to gauge the desirability of an NTB and its likely protectionist nature if externalities are small and if its costs greatly exceed its benefits in expected terms. The combined use of scientific knowledge and cost-benefit assessment of an NTB is a demanding process suitable for a detailed analysis of a specific case study rather than for large-scale multi-market analyses. Another

limitation of this approach is the partial knowledge of health, environmental, and other risks associated with trade and their economic significance.

NTB measures are an essential step in computing welfare effects of the NTBs. Beyond welfare effects, these measures are also useful for policy purposes. WTO disputes frequently arise alleging that some NTBs impede trade more than necessary to achieve some legitimate objective or that they are just protectionist. These NTB measures are used in the formal dispute process to estimate export market losses and price-lowering effects of the incriminated policy.

References

- Beghin, John, and Jean-Christophe Bureau. 2001. "Quantitative Policy Analysis of Sanitary, Phytosanitary and Technical Barriers to Trade," *Economie Internationale* 87: 107-130.
- Deardorff, Alan V., and Robert M. Stern. 1998. *Measurement of Nontariff Barriers: Studies in International Economics*. Ann Arbor MI: University of Michigan Press.
- Dee, Philippa, and Michael Ferrantino, eds. 2005. *Quantitative Methods for Assessing the Effects of Non-Tariff Measures and Trade Facilitation*. Singapore: APEC Secretariat and World Scientific Publishing Co.
- Disdier, Anne-Célia, Lionel Fontagné, and Mondher Minouni. 2006. The Impact of Regulations on Agricultural Trade: Evidence from SPS and TBT Agreements," Working Paper, Centre d'Etudes Prospectives et d'Informations Internationales, Paris.
- Fisher, Ronald, and Pablo Serra. 2000. "Standards and Protection." *Journal of International Economics* 52: 377-400.
- Henson, Spencer, and John S. Wilson, eds. 2005. *The WTO and Technical Barriers to Trade*, in the Critical Perspectives on the Global Trading System and the WTO series, Northampton, MA: Edward Elgar Publishing Ltd.
- Kee, Hiau Looi, Alessandro Nicita, and Marcelo Olarreaga. 2006, "Estimating Trade Restrictiveness Indices," World Bank Policy Research Working Paper # 3840.
- United Nations Conference on Trade and Development (UNCTAD). 2005. "Methodologies, Classifications, Quantification and Development Impacts of Non-Tariff Barriers: Note by the UNCTAD Secretariat," Document TD/B/COM.1/EM.27/2, June 23.
- Vousden, Neil. 1990. *The Economics of Trade Protection*. Cambridge, UK: Cambridge University Press.